

Clinical Trial Protocol

Iranian Registry of Clinical Trials

16 Sep 2026

The effect of overnight fasting and subsequent carbohydrate and sodium bicarbonate consumption on anaerobic power, fatigue index, and sustainability of resistance workout repetition in trained young men

Protocol summary

Study aim

Investigating the effect of acute consumption of carbohydrates and sodium bicarbonate following overnight fasting on anaerobic performance, fatigue index and the ability to maintain repetitions of resistance activity in trained young men

Design

applied study in a group with a counterbalance design in 5 occasions and the presence of a placebo on 12 healthy trained men

Settings and conduct

this study will be conducted in the faculty of physical education and sports sciences of the University of Guilan. Participants will perform RAST, chest press until exhaustion, and leg press until exhaustion tests in postprandial state or fast and subsequent use of sodium bicarbonate, carbohydrate, combined supplements or placebo.

Participants/Inclusion and exclusion criteria

18 to 26 years men; normal BMI; At least 2 years history of regular exercise; Absence of cardiovascular, metabolic, gastrointestinal and kidney diseases; The absence of musculoskeletal injuries limiting the activity; Not taking medicine and nutritional and sports supplements in the last 6 months

Intervention groups

one group in 5 occasions: control-postprandial; fast-placebo (NaCl); fast-sodium bicarbonate; fast-carbohydrate; fast-combined supplement

Main outcome variables

Peak, average and minimal anaerobic power; Fatigue index; rate of perceived exertion; and muscular endurance

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20190213042702N2**

Registration date: **2023-10-04, 1402/07/12**

Registration timing: **registered_while_recruiting**

Last update: **2023-10-04, 1402/07/12**

Update count: **0**

Registration date

2023-10-04, 1402/07/12

Registrant information

Name

Maryam Ebrahimi

Name of organization / entity

Faculty of physical education and sport sciences,
University of Guilan

Country

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Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-09-23, 1402/07/01

Expected recruitment end date

2023-11-06, 1402/08/15

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The effect of overnight fasting and subsequent carbohydrate and sodium bicarbonate consumption on anaerobic power, fatigue index, and sustainability of resistance workout repetition in trained young men

Public title

The effect of sodium bicarbonate and carbohydrate after overnight fasting on anaerobic power

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

18 - 26 years old men Normal BMI at least 2 years' history of regular exercise

Exclusion criteria:

metabolic, cardiovascular, gastrointestinal, renal disease musculoskeletal injury limiter sport activity sport supplements consumption through 6 month ago

Age

From **18 years** old to **26 years** old

Gender

Male

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **12**

Randomization (investigator's opinion)

Randomized

Randomization description

After the pre-test, simple randomization In 4 sealed envelopes containing the names of supplements and placebo was done. in the presence of the researcher and by recording the order of choosing the envelopes by the participants, a lottery was conducted and the turns of receiving the supplements were determined for each subject, and only the researcher was aware of the turns.

Blinding (investigator's opinion)

Not blinded

Blinding description

Placebo

Used

Assignment

Other

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Guilan university of medical sciences

Street address

Deputy of research and technology, Siadati St,

Namjoo St, Rasht/Iran

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Province

Guilan

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4199843653

Approval date

2023-08-22, 1402/05/31

Ethics committee reference number

IR.GUILAN.REC.1402.033

Health conditions studied

1

Description of health condition studied

Healthy

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

anaerobic power

Timepoint

one Pre-test in postprandial state, and 4 trials with 72 hours of washout period

Method of measurement

RAST field test for assessing anaerobic power and fatigue index

2

Description

ability to sustain resistance exercise

Timepoint

one Pre-test in postprandial state, and 4 trials with 72 hours of washout period

Method of measurement

repeat to exhaustion of leg and chest press with 60% of one repetition maximum

Secondary outcomes

empty

Intervention groups

1

Description

following overnight fasting, subjects will participate in RAST and repeat to exhaustion of chest and leg press, 90 minutes after consumption of 0.3 g/kg NaHCO₃.

Category

Other

Description

following overnight fasting, subjects will participate in RAST and repeat to exhaustion of chest and leg press, 30 minutes after consumption of 12% carbohydrate solution (sucrose/maltodextrin).

Category

Other

3**Description**

following overnight fasting, subjects will participate in RAST and repeat to exhaustion of chest and leg press, 90 minutes after consumption of 0.3 g/kg NaHCO₃ and consumption of 12% carbohydrate solution 30 min pre-test.

Category

Other

4**Description**

following overnight fasting, subjects will participate in RAST and repeat to exhaustion of chest and leg press, 90 minutes after consumption of 0.045 g/kg NaCl.

Category

Other

5**Description**

Control intervention: Subjects will participate in RAST and chest and leg press repetition until exhaustion tests in a postprandial state and one hour after breakfast.

Category

Other

Recruitment centers**1****Recruitment center****Name of recruitment center**

Faculty of physical education and sport sciences

Full name of responsible person

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Web page address**Sponsors / Funding sources****1****Sponsor****Name of organization / entity**

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Grant name**Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

No

Title of funding source

University of Guilan

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin**Type of organization providing the funding**

Academic

Person responsible for general inquiries**Contact****Name of organization / entity**

University of Guilan, Faculty of physical education and sport sciences

Full name of responsible person

Maryam Ebrahimi

Position

Assistant professor

Latest degree

Ph.D.

Other areas of specialty/work

Biochemistry

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Undecided - It is not yet known if there will be a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

No - There is not a plan to make this available